

Table 8a. U.S. Renewable Energy Consumption (Quadrillion Btu)

U.S. Energy Information Administration | Short-Term Energy Outlook - November 2022

	2021				2022				2023				Year		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	2021	2022	2023
Electric Power Sector															
Geothermal	0.034	0.035	0.035	0.035	0.034	0.033	0.036	0.035	0.034	0.033	0.037	0.034	0.138	0.139	0.138
Hydroelectric Power (a)	0.603	0.577	0.533	0.560	0.671	0.621	0.578	0.509	0.631	0.722	0.591	0.545	2.272	2.379	2.490
Solar (b)	0.189	0.309	0.308	0.207	0.257	0.394	0.380	0.254	0.308	0.490	0.487	0.343	1.014	1.285	1.628
Waste Biomass (c)	0.060	0.059	0.059	0.058	0.056	0.053	0.055	0.055	0.055	0.054	0.055	0.055	0.236	0.219	0.219
Wood Biomass	0.051	0.046	0.054	0.048	0.052	0.047	0.054	0.043	0.047	0.042	0.050	0.043	0.199	0.196	0.182
Wind	0.863	0.856	0.684	0.969	1.064	1.084	0.731	1.021	1.136	1.144	0.779	1.070	3.372	3.900	4.129
Subtotal	1.800	1.881	1.673	1.876	2.135	2.233	1.833	1.917	2.211	2.485	2.000	2.089	7.231	8.118	8.786
Industrial Sector															
Biofuel Losses and Co-products (d)	0.179	0.199	0.196	0.216	0.203	0.203	0.202	0.204	0.195	0.199	0.198	0.204	0.789	0.812	0.796
Geothermal	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.001	0.004	0.004	0.004
Hydroelectric Power (a)	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.008	0.008	0.008
Solar (b)	0.007	0.011	0.011	0.007	0.008	0.011	0.012	0.008	0.009	0.012	0.012	0.009	0.036	0.039	0.042
Waste Biomass (c)	0.042	0.040	0.037	0.042	0.042	0.040	0.039	0.042	0.040	0.039	0.039	0.041	0.160	0.162	0.160
Wood Biomass	0.333	0.339	0.343	0.328	0.315	0.321	0.339	0.353	0.346	0.344	0.355	0.357	1.342	1.328	1.403
Subtotal (e)	0.568	0.596	0.595	0.602	0.576	0.583	0.600	0.615	0.598	0.603	0.613	0.620	2.361	2.374	2.434
Commercial Sector															
Geothermal	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.024	0.025	0.024
Solar (b)	0.028	0.042	0.042	0.028	0.033	0.049	0.048	0.034	0.039	0.057	0.057	0.040	0.140	0.164	0.193
Waste Biomass (c)	0.009	0.008	0.009	0.009	0.010	0.009	0.009	0.009	0.009	0.009	0.009	0.009	0.035	0.037	0.037
Wood Biomass	0.020	0.020	0.021	0.021	0.020	0.021	0.021	0.021	0.020	0.021	0.021	0.021	0.083	0.083	0.083
Subtotal (e)	0.070	0.085	0.086	0.072	0.077	0.093	0.093	0.078	0.082	0.101	0.102	0.084	0.313	0.340	0.369
Residential Sector															
Geothermal	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.010	0.040	0.040	0.040
Solar (f)	0.065	0.099	0.097	0.067	0.079	0.118	0.120	0.084	0.095	0.147	0.150	0.105	0.329	0.401	0.497
Wood Biomass	0.114	0.116	0.117	0.117	0.119	0.121	0.120	0.117	0.119	0.121	0.120	0.117	0.464	0.477	0.477
Subtotal	0.189	0.225	0.224	0.194	0.208	0.249	0.250	0.211	0.224	0.278	0.280	0.232	0.832	0.918	1.014
Transportation Sector															
Biodiesel, Renewable Diesel, and Other (g) ...	0.083	0.099	0.094	0.110	0.094	0.117	0.115	0.139	0.127	0.135	0.135	0.160	0.386	0.464	0.556
Ethanol (g)	0.242	0.281	0.285	0.289	0.259	0.281	0.281	0.280	0.258	0.280	0.279	0.282	1.098	1.101	1.099
Subtotal	0.326	0.379	0.379	0.400	0.353	0.397	0.396	0.421	0.385	0.415	0.414	0.442	1.484	1.567	1.656
All Sectors Total															
Biodiesel, Renewable Diesel, and Other (g) ...	0.083	0.099	0.094	0.110	0.094	0.117	0.115	0.139	0.127	0.135	0.135	0.160	0.386	0.464	0.556
Biofuel Losses and Co-products (d)	0.179	0.199	0.196	0.216	0.203	0.203	0.202	0.204	0.195	0.199	0.198	0.204	0.789	0.812	0.796
Ethanol (f)	0.253	0.293	0.298	0.302	0.271	0.293	0.294	0.291	0.270	0.292	0.292	0.295	1.147	1.149	1.149
Geothermal	0.050	0.052	0.052	0.052	0.051	0.051	0.053	0.053	0.051	0.050	0.054	0.051	0.206	0.207	0.206
Hydroelectric Power (a)	0.605	0.580	0.535	0.562	0.674	0.624	0.581	0.512	0.634	0.725	0.594	0.548	2.283	2.390	2.501
Solar (b)(f)	0.290	0.461	0.458	0.310	0.378	0.572	0.559	0.379	0.450	0.706	0.707	0.497	1.519	1.889	2.360
Waste Biomass (c)	0.110	0.107	0.106	0.109	0.107	0.102	0.104	0.106	0.105	0.103	0.104	0.105	0.431	0.419	0.416
Wood Biomass	0.519	0.520	0.535	0.513	0.507	0.509	0.535	0.533	0.532	0.527	0.547	0.538	2.087	2.084	2.145
Wind	0.863	0.856	0.684	0.969	1.064	1.084	0.731	1.021	1.136	1.144	0.779	1.070	3.372	3.900	4.129
Total Consumption	2.953	3.166	2.958	3.144	3.349	3.554	3.172	3.241	3.501	3.881	3.409	3.467	12.221	13.316	14.259

(a) Conventional hydroelectric power only. Hydroelectricity generated by pumped storage is not included in renewable energy.

(b) Solar consumption in the electric power, commercial, and industrial sectors includes energy produced from large scale (>1 MW) solar thermal and photovoltaic generators and small-scale (<1 MW) distributed solar.

(c) Municipal solid waste from biogenic sources, landfill gas, sludge waste, agricultural byproducts, and other biomass.

(d) Losses and co-products from the production of fuel ethanol and biomass-based diesel

(e) Subtotals for the industrial and commercial sectors might not equal the sum of the components. The subtotal for the industrial sector includes ethanol consumption that is not shown separately. The subtotal for the commercial sector includes ethanol and hydroelectric consumption that are not shown separately.

(f) Solar consumption in the residential sector includes energy from small-scale (<1 MW) solar photovoltaic systems. Also includes solar heating consumption in all sectors.

(g) Fuel ethanol and biodiesel, renewable diesel, and other biofuels consumption in the transportation sector includes production, stock change, and imports less exports. Some biomass-based diesel may be consumed in the residential sector in heating oil.

- = no data available

Notes: EIA completed modeling and analysis for this report on November 3, 2022.

The approximate break between historical and forecast values is shown with historical data printed in bold; estimates and forecasts in italics.

Historical data: Latest data available from EIA databases supporting the following reports: *Electric Power Monthly*, DOE/EIA-0226 and *Renewable Energy Annual*, DOE/EIA-0603; *Petroleum Supply Minor Discrepancies* with published historical data are due to independent rounding.**Forecasts:** EIA Short-Term Integrated Forecasting System.